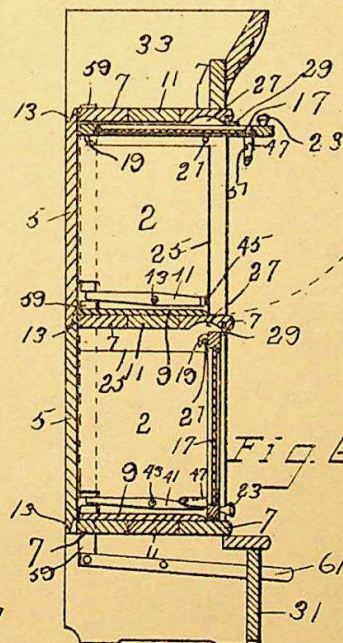
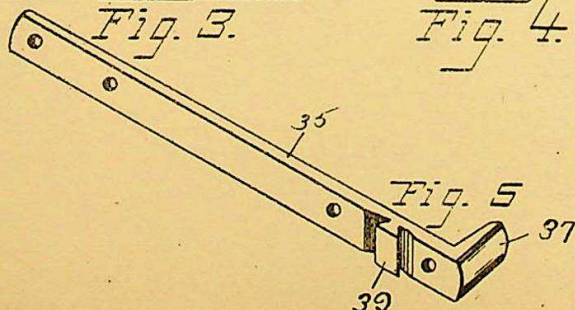
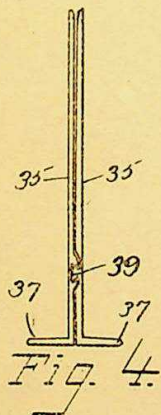
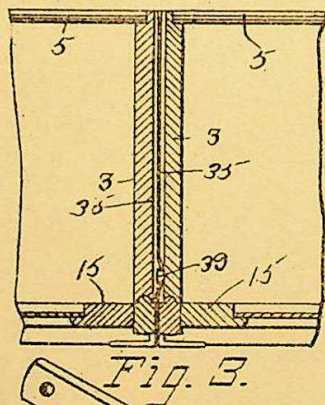
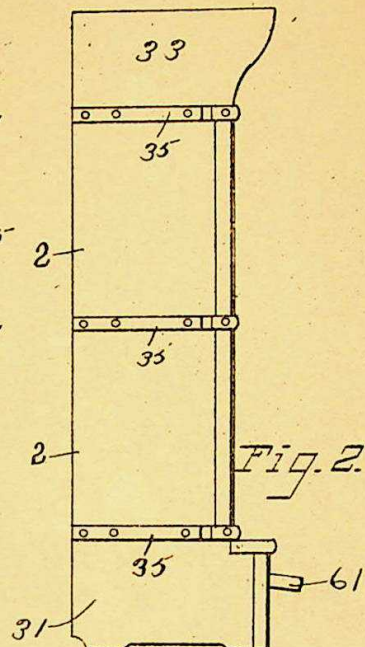
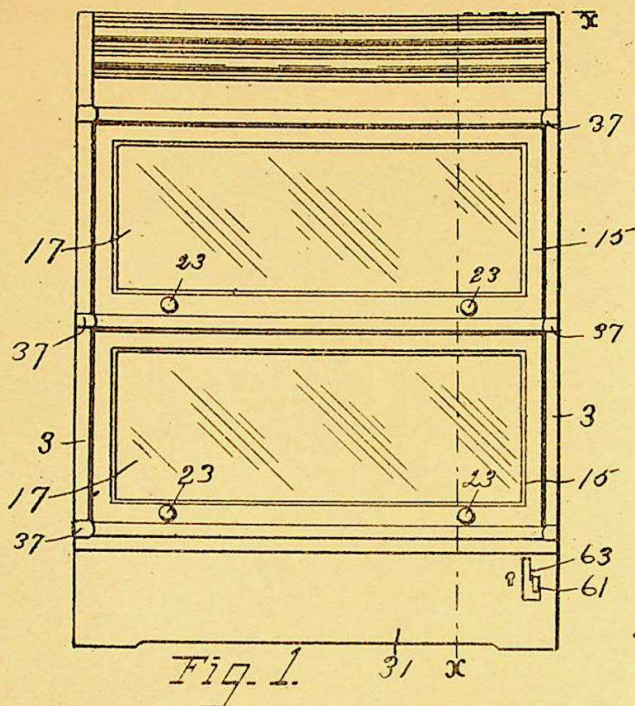


312. SUPPORTS, CABINET STRUCTURES





312. SUPPORTS, CABINET STRUCTURES

SHEET 1.

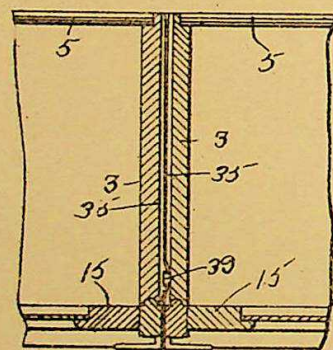
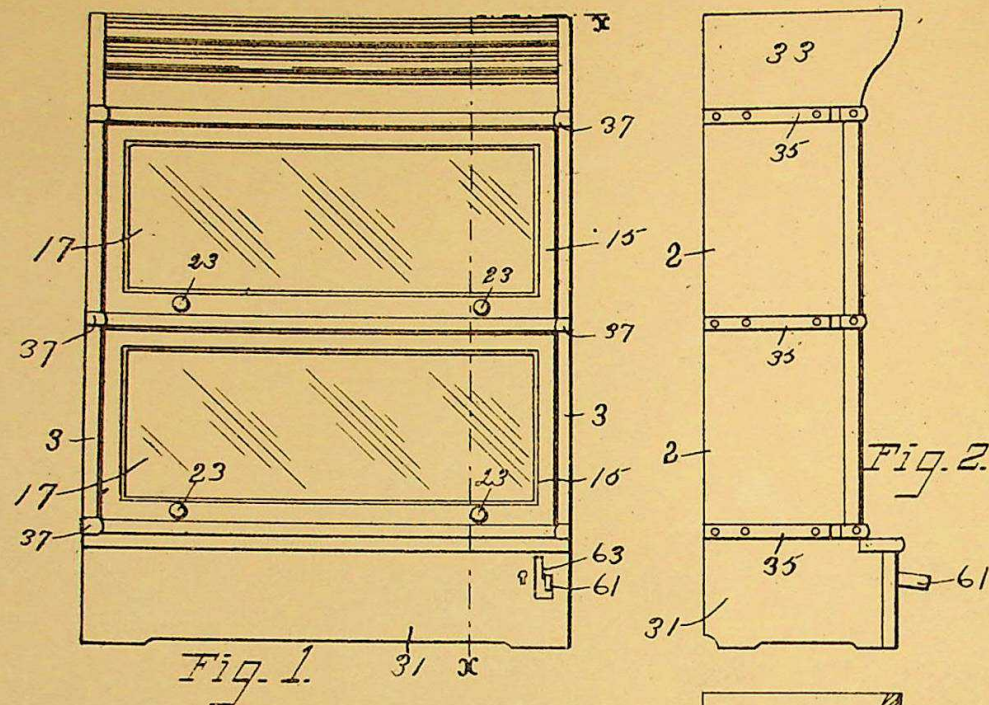


Fig. 3.

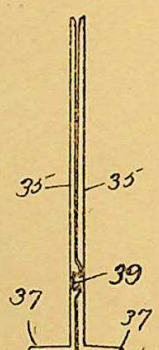


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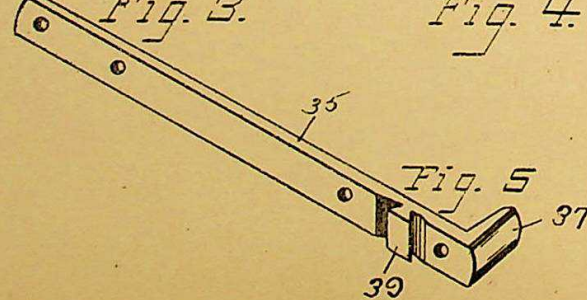


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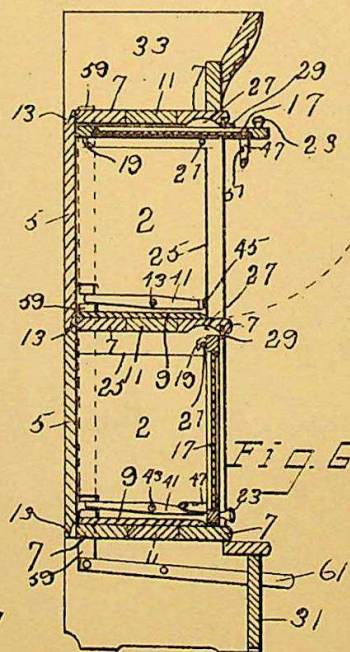


Fig. 6.

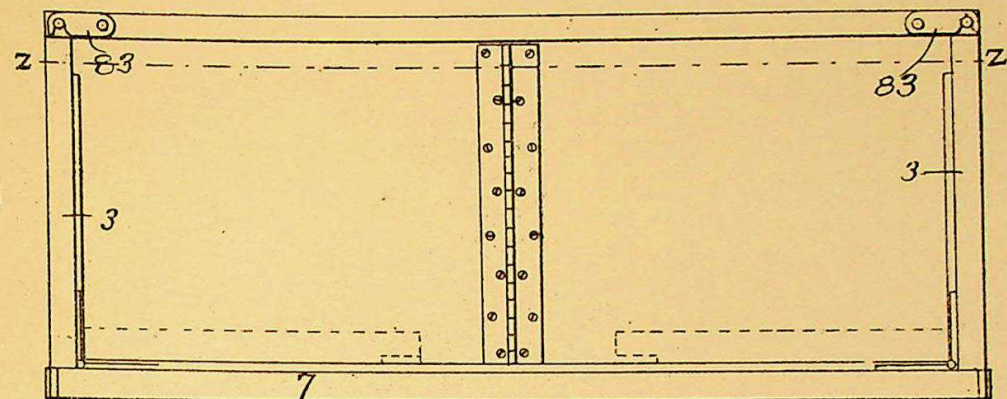


Fig. 13.

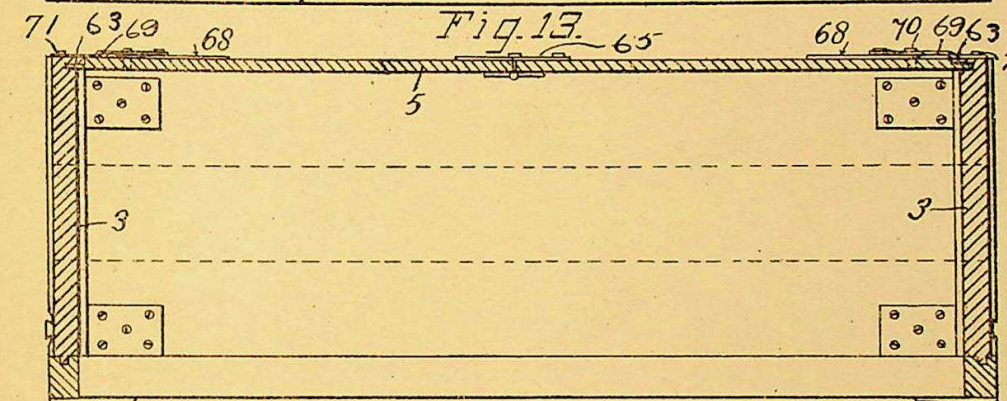


Fig. 14.

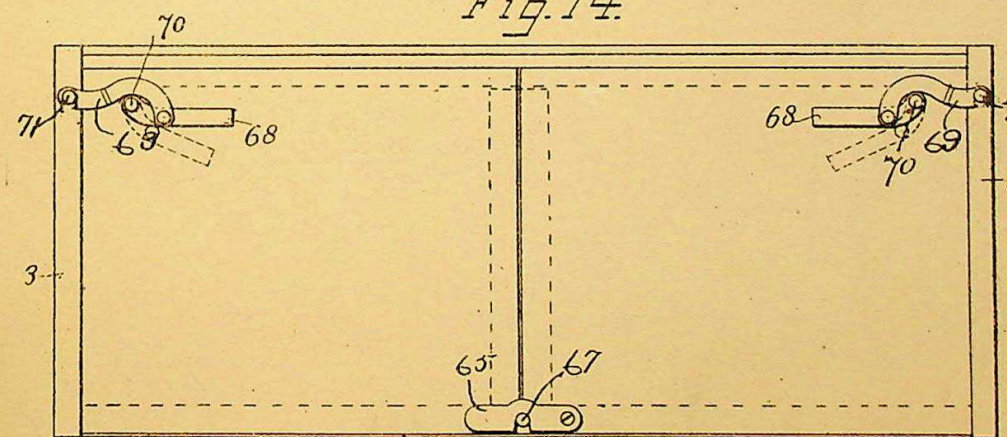


Fig. 15.

( 4 SHEETS )

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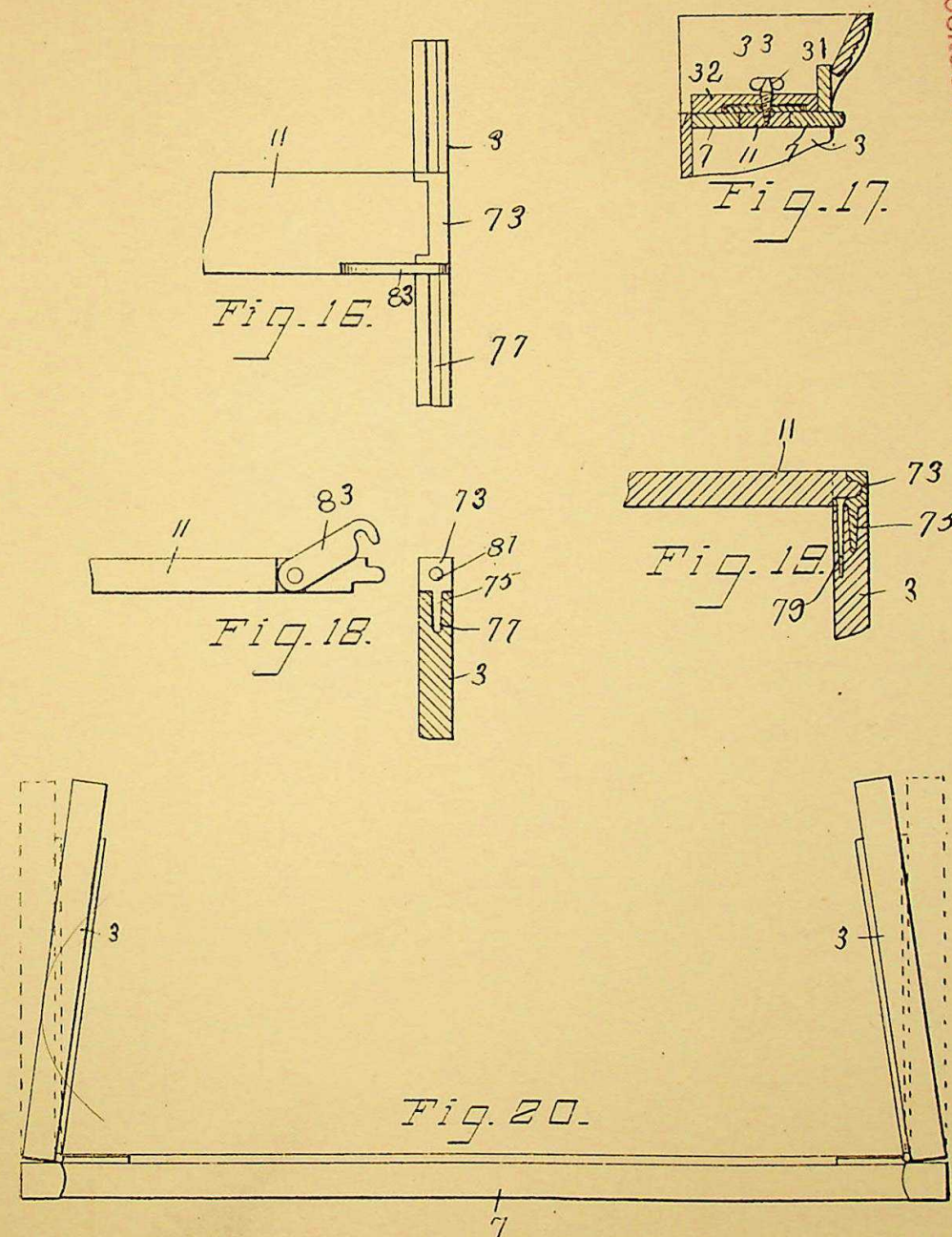
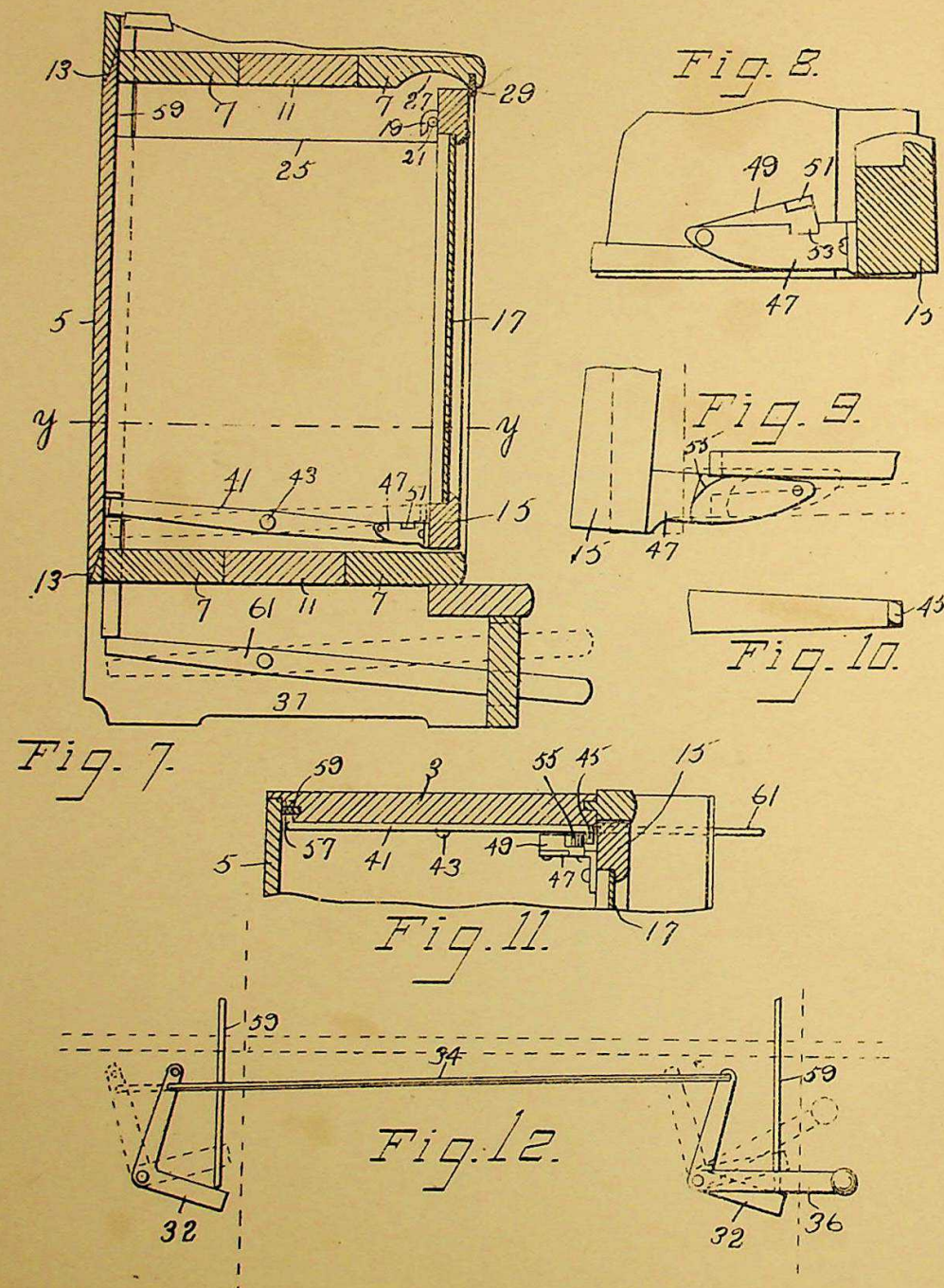
45. FURNITURE.  
Book Cases,  
Knockdown.

[This Drawing is a reproduction of the Original on a reduced scale.]



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SHEET 3.



45. FURNITURE,  
Book Cases,  
Knockdown.

( 4 SHEETS )  
SHEET 4.

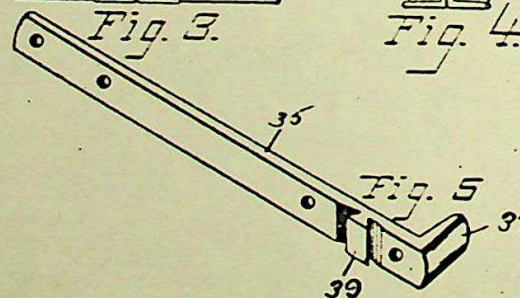
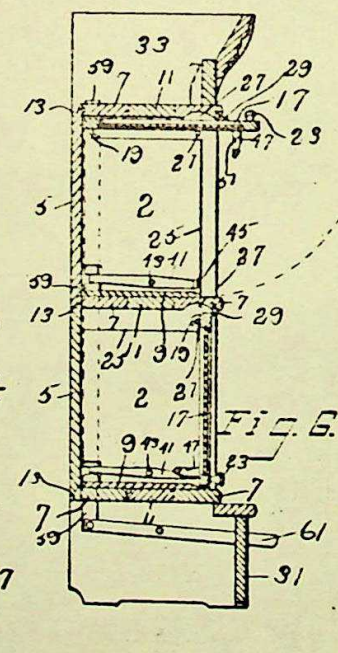
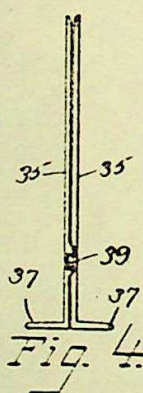
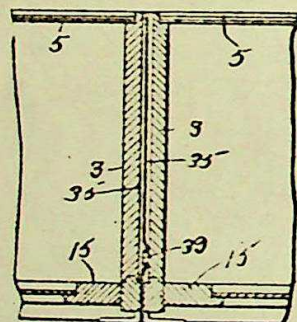
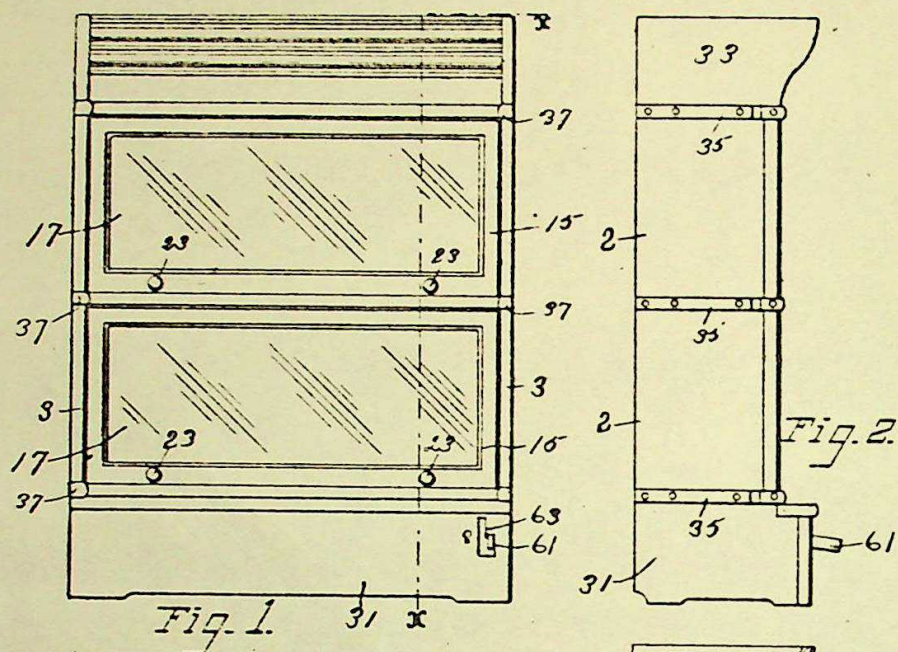
[This Drawing is a reproduction of the Original on a reduced scale.]



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A.D. 1896. APRIL 7. N<sup>o</sup> 7342  
 WERNICKES COMPLETE SPECIFICATION.

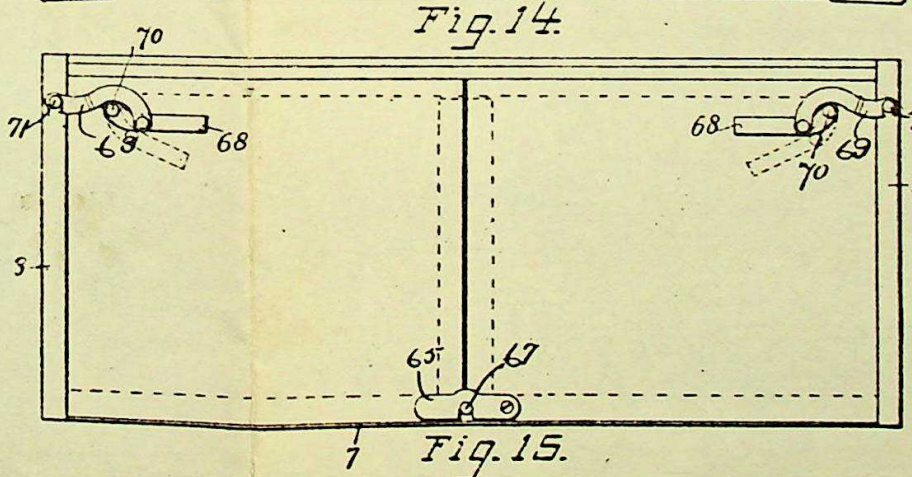
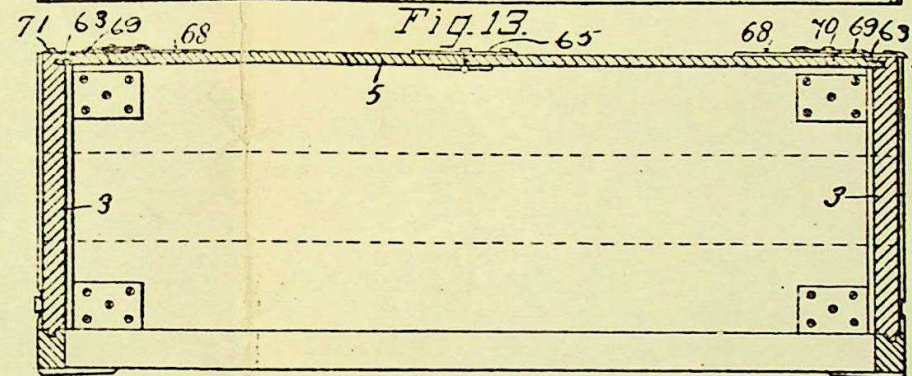
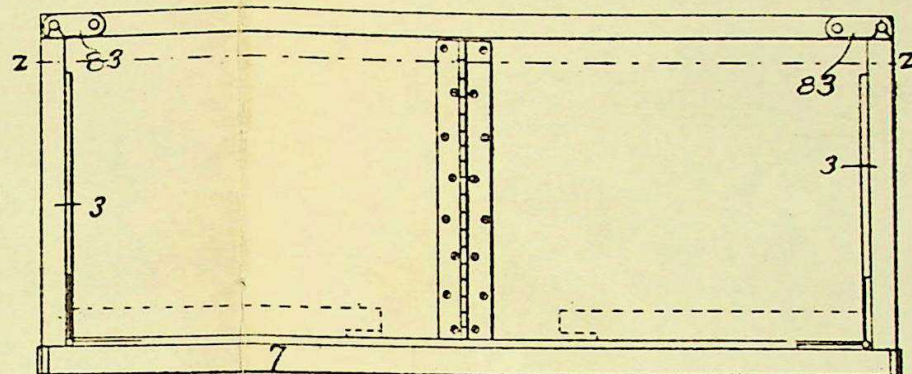
*SHEET 1*



LONDON. Printed by DARLING and SON, Ltd.  
for Her Majesty's Stationery Office 1896.

4 SHEETS

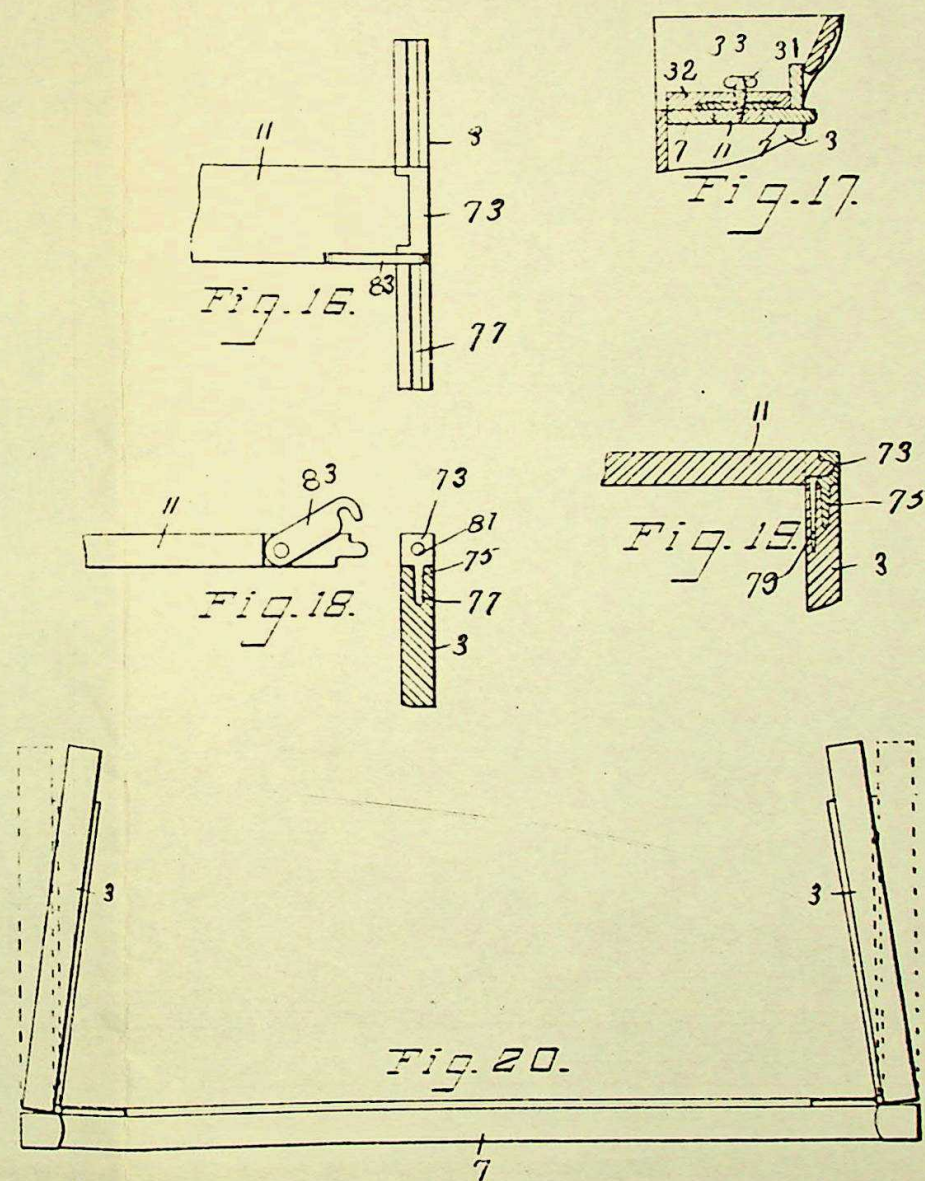
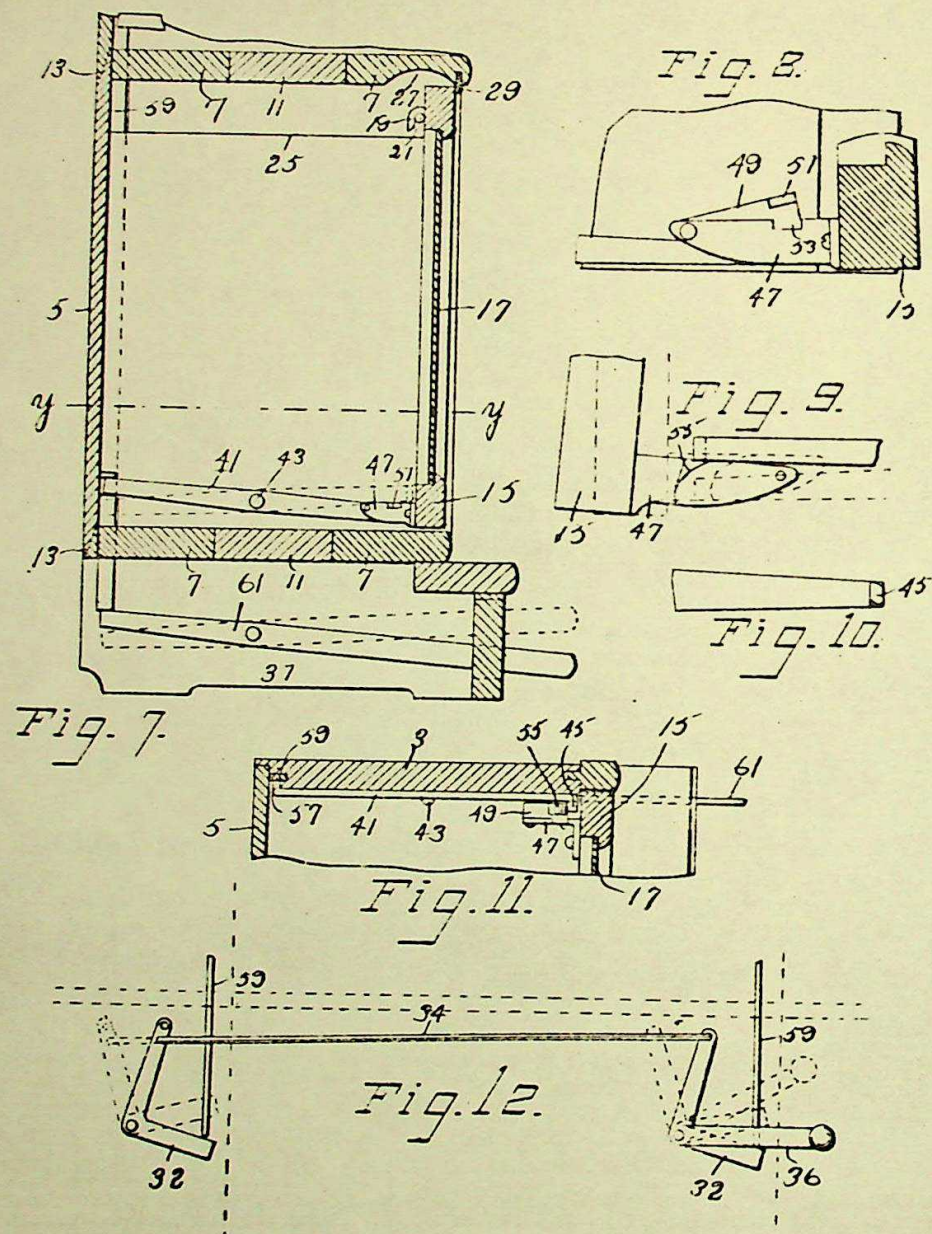
SHFET 2.



[This Drawing is a reproduction of the Original on a reduced scale.]

Malby &amp; Sons, Photo-Lith.





[This Drawing is a reproduction of the Original on a reduced scale.]





Date of Application, 7th Apr., 1896—Accepted, 15th Aug., 1896

### COMPLETE SPECIFICATION.

#### A Separable Case for Books and other Articles.

I, OTTO HEINRICH LOUIS WERNICKE, Manufacturer, of 2544 S. Dupont Avenue, in the City of Minneapolis, County of Hennepin, State of Minnesota, United States of America, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

My invention relates to a separable case designed for holding books or other articles; and the object of my invention is to provide a case of several box or crate-like parts wherein the books or other articles may be placed and carried, the case being capable of being taken apart by the removal of these boxes or crates one by one, or assembled by the placing of several of the crates or boxes one upon the other. The boxes or crates being constructed of uniform dimensions are interchangeable and may be placed together in any order. Another object of the invention is to provide means whereby several tiers of such crates or boxes may be locked together, end for end, thus forming a case of any desired length. Another object is to provide means whereby the crates may, if desired, be folded or "knocked down" for the purpose of shipment. And still another object is to provide means for locking the doors of the several crates or boxes simultaneously.

In the accompanying drawings forming part of this specification;

Fig. 1 is a front elevation of a book-case constructed in accordance with my invention.

Fig. 2 is an end elevation of the same.

Figs. 3, 4 and 5 are details showing the means for locking the crates together, end for end.

Fig. 6 is a vertical section on the line  $x-x$  of Fig. 1.

Fig. 7 is a section, on a larger scale, through one of the crates, showing the construction of the locking device.

Figs. 8, 9 and 10 are details of the lock.

Fig. 11 is a detailed section on the line  $y-y$  of Fig. 7.

Fig. 12 is a detail illustrating the means for connecting the locking devices of two vertical tiers of crates.

Fig. 13 is an inside elevation.

Fig. 14 is a horizontal section on the line  $z-z$  of Fig. 13, and Fig. 15 is a back elevation, these three views showing the construction of a folding crate such as may be used in my improved book-case.

Figs. 16, 17, 18, 19 and 20 are details of the folding crate construction.

As shown in the drawings, 2 represents a single box or crate, any number of which may be employed in the construction of a case for holding books or other articles. Each of these crates is constructed of two end pieces 3, a back piece 5, and bottom formed of two narrower strips 7, having a space between them and a thin plate 9 arranged upon the tops of said strips 7 and extending over the space between them, as shown most clearly in Fig. 6. The top is constructed of a single narrow strip 11, as shown in said Fig. 6. The back 5 is provided at its upper and lower ends with the interlocking lips or projections 13, whereby when two of said crates are piled up one upon the other said projections will interlock, as shown in Fig. 6, and form a tight joint. A door is provided, preferably consisting of a frame 15 having a glass panel 17, and said door is preferably secured in position by means of hooks 19 arranged upon the inside of the door and at its upper end, said hooks being adapted to engage with pins 21

[Price 8d.]



*Wernicke's Separable Case for Books and other Articles.*

upon the inner walls of the ends of the crate. The door is also preferably provided with suitable handles 23. The end walls of the crate are preferably provided, at a point near their upper ends, with the shoulders 25, and the door is adapted to be swung outward, turning upon the pins 21, into a horizontal position and then pushed back under the top wall of the crate, thereby moving them from the position shown at the lower part of Fig. 6 to that shown at the upper part of said figure. The forward strip 7, forming the bottom of the crate, is preferably provided with a curved recess 27, as shown in Fig. 6, which permits the door to turn freely upon the pin 21, and I also prefer to provide said strip 7 with a downwardly projecting felt strip 29, as shown in Fig. 6, against which the upper edge of the doors will strike when the door is swung down into a vertical position, as shown in Fig. 6, thereby forming a dust-proof joint at the top of the door.

The doors are preferably hung on a pivot 21, which is eccentrically arranged so that the door will close and will be held closely shut by gravity. The felt strip at the top of the door prevents the air from escaping at the top when the door is being closed and thus confines it within the crate or box and causes it to form an air cushion, which prevents slamming of the door and all danger of breaking the glass, and makes the device noiseless; and as the air is forced out from under the lower edge of the door as the door is being closed, it will carry with it all light particles of dust that may have accumulated upon the lower shelf while the door is opened. The curved recess 27 in the bottom strip 7 above the edge of the door, causes the shelf to be slightly crowned upward by a natural seasoning process of the wood, and acts as a truss to support the weight of the contents of the box or crate. The door being hung in the manner described occupies no space except its own thickness, and being hung solely upon the ends of the crate it is not affected by any slight sag there may be in the bottom of the crate above.

I also prefer to provide a suitable base 31, the top of which corresponds to the top of one of the crates, so that any one of said crates will fit upon the top of said base, as indicated in Figs. 1, 2 and 6; and I also prefer to provide a suitable top 33, the bottom of which corresponds to the bottom of one of said crates. I also prefer to provide the crate with a metallic finishing strip 35, as shown in Figs. 4 and 5, said strip being extended backward along each end wall of the crate, at the bottom thereof, and provided with a lug 37 which extends around the front of the crate for a short distance, as shown in Fig. 1. These strips are preferably secured to the ends of the strips 7, forming the bottom of each crate. The strip 35, at one end of each crate is provided with a dove-tailed projection 39, and the strip at the other end with a corresponding recess, as shown in Figs. 3 and 4, so that when two of said crates are brought together, end for end, they may be interlocked and firmly secured by the engagement of the lug upon one crate with the corresponding recess upon the other, as indicated in Fig. 3. The strips 35, therefore, not only serve to protect the end walls of the crates and the front corners thereof when said crates are being handled, but they also provide means for locking the separate tiers of said crates together, and secure an alignment of the crates even when placed upon an uneven surface.

I prefer to provide the crate with a locking device so arranged that all of the locks in one or more tiers of crates may be simultaneously operated. For this purpose I provide upon the inner wall at one end of each crate, a lever 41 mounted upon a pivot 43, the forward end of said lever being provided with an outwardly turned end 45. Upon the inner surface of the door frame near its lower edge I provide the projection 47, having an upwardly curved lower surface, and to which is pivoted at its outer end the lug 49. Said lug is provided with a lip 51 that engages a recess 53 in the projection 47 and prevents the end of said lug from dropping below the lower surface of the projection 47, but leaving said lug free to turn upward on the pivot connecting it to the end of the projection 47. The lower surface of the lug 49 conforms to the lower surface of the projection 47, but its



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upper surface is rounded off at one side 55, as shown in Figs. 9 and 11. The rear end of the lever 41 is provided with a right-angled projection 57, which projects into a slot in the end of the crate, and a vertically sliding bar or rod 59, arranged in a vertical groove in the end of the crate, has its lower end resting upon said projection on the lever 41. The weight of said bar tends to hold the lever 41 with its forward end raised, as indicated by dotted lines in Fig. 7, in which position the door is unlocked. When several of the crates are piled one on top of the other, the vertical grooves in which the bars 59 slide coincide with one another, and the bar in any crate will, when raised, slide into the recess in the crate above and engage the rear end of the lever 41, moving its rear end upward and depressing its forward end, and likewise moving all of the bars and levers above it. In the base 31 I provide a short bar 59, corresponding to the bars 59 in the crates, and said bar engages and operates the rear end of the lever 49 in the lowermost crate. This bar 59 in the base 31 rests upon the inner end of a lever 61 that projects through a slot in the forward wall of the base, as shown in Fig. 1. This slot preferably has a shoulder 63 at one side thereof, and when the forward end of the lever 61 is depressed it may be brought beneath the shoulder 63 and thus held in its depressed position, when all of the bars 59 will be elevated and all of the levers 41 will have their forward ends depressed in position for locking the doors. The lever 61 may be locked by means of an ordinary door-lock or any other suitable lock (not shown) which will prevent the case from being opened by any unauthorized person. When the forward ends of the levers 41 are depressed they strike upon the curved surfaces 55 of the pivoted lugs 49, as shown in Fig. 9, and sliding down over said curved surfaces draw the doors closely shut and lock them in such position until said levers 41 are again raised. If any door should happen to be open when the levers are depressed it may readily be closed without raising the levers, as the curved under-surface of the lug 49 will then strike on the in-turned end of the lever 41 and said lug will ride over this in-turned end of the lever, as indicated in Fig. 8, and drop behind it, thereby locking the door in its closed position.

As it is sometimes desirable to lock doors of several tiers of crates simultaneously, I provide means illustrated in Fig. 12 for accomplishing this result. In this figure 59 represents the vertically moving bars in two of the bases 31. Their lower ends rest upon the bell-crank levers 32, and said levers are connected by a rod 34. An arm 36 is provided for one of said levers by means of which said levers may be operated, and thereby the locks in the crates of both tiers may be simultaneously controlled. Any number of tiers may be connected in a similar manner.

In some instances I prefer to construct the box or crate so that it may be folded or "knocked down." I have shown this construction in Figs. 13 to 20. As here shown the ends 3 of the crate are hinged to the bottom, and a removable back and top is provided, the back 5 being formed in two parts and hinged together at the center. Each of said sections has upon its end a tongue 63 adapted to engage a vertical groove in the rear part of the end 3. The two parts of the back are secured at the middle by a suitable hinge so that the back practically forms a toggle lever which may be sprung into place between the ends against the pressure which the said ends naturally exert. The back is sprung past its centre and is furthermore secured at the bottom of the case by a strap hook 65 adapted to engage the head of a screw or pin 67 extending through into the bottom strip 7. In addition to this the ends 3 are drawn snugly against the ends of the back by the latches 69 which are pivoted to levers 68 fulcrumed to the back at 70 each latch 69 being bent and having a hooked end to engage a pin or screw 71 in the rear edge of the end 3. When the hooked end of the latch 69 engages the pin 71 and the lever 68 is raised from the position indicated by dotted lines into the position shown in full lines in Fig. 15 the end 3 is drawn tightly against the end of the back.

The top of the crate or section comprises the single board or strip 11, having its



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ends secured upon the top of the ends 3, this strip being so fastened that it may be readily removed to permit the ends to be folded down. The fastening employed is one which will prevent the board from pulling away from the ends and at the same time such that the board 11 will tie the end sections 3 together. This fastening comprises the socket casting 73 preferably provided with a thin web 75 on its lower surface which web may be the length of the end 3, and being arranged in the saw cut or groove 77 in the top of the end 3, will prevent the end from warping. Any suitable means may be used to secure the socket casting 73 in place, as, for instance, a nail or nails 79 which pass down through the same into the end 3, as shown in Fig. 19. As shown in this figure the socket casting is provided with a recess to admit the end of the board 11, and on the end of the casting 73 is a lug 81, with which a hook 83 on the board 11 will engage, to tie the parts together. The end of the board 11 projects beneath the upper part of the casting 73 so that when put together a crate may be lifted by the top strip or board 11. When erected in this form the case is quite as solid as though its parts were secured together with glue and nails, while by unfastening the few hooks the boards may be readily folded or collapsed. It will be seen that when such crates are duplicated and placed one upon the other the top board 11 of each crate will enter the straps between the two bottom strips or boards 7 of the crate above it. In this way the bottom or partition between two sections causes the sections to be firmly locked together. To prevent longitudinal movement of one section upon another and to form a finish for the end of each section I employ the metal strips 35, heretofore described and shown in Figs. 3, 4 and 5. The main portion of each strip 35 extends along the bottom edge of the section to cover the opening between the bottom strips, and engages the end of the top strip or board 11 of an underlying section.

The top 33 may be provided with cross-strips 32, as shown in Fig. 17, in order that a thumb-screw 31 may be screwed down through the top board 11 of the last or upper crate, whereby the top is prevented from warping out of shape and the crates are also prevented from twisting out of position.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:

1. A case for holding books or other articles, comprising a series of separate sections, adapted to be arranged one upon top of another, and means for locking said sections together.
2. A case for holding books or other articles, comprising a series of boxes or crates, adapted to be arranged one upon top of another, and means for locking said crates together, each of said crates being provided with a door hinged at its upper edge and arranged to be turned down to close the front of the crate, or to be turned into a horizontal position and pushed back under the top of the crate.
3. The crates or sections, each having its bottom composed of independent longitudinal strips with a space between them, and with a thin pad arranged over said strips, and its top provided with a longitudinal strip adapted to fit into the space between the two longitudinal strips upon the bottom of another section.
4. A crate or section for a case, provided with a removable back and top, and with folding ends.
5. A section or crate, provided with a folding removable back, folding ends, a hinged top, and a removable door hinged at its upper edge to the ends of the crate and adapted to be swung down over the front of the crate or to be turned into a horizontal position and pushed back under the top.
6. The finishing strips 35 arranged upon the ends of the crates, and having dovetailed recesses and projections for interlocking with each other.
7. The locks for the doors of the separate cases, all arranged to be simultaneously operated.



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8. The book-case, comprising the separate crates or boxes, adapted to be filed one upon another, and each having a door hinged at its upper edge, locks for said doors, and means for simultaneously operating all of said locks.
- 5 9. The combination, with the crate or section, provided with the door hinged at its upper edge to the ends of the section, and having the lugs 47, with the pivoted levers 41 and the sliding bars 59 for operating said levers.
10. The box or crate, having its front bottom strips 7 provided with the curved recess 27 and with the felt strip 29, and the door hinged by hooks 19 upon the pins 21.
- 10 11. The combination, with the series of crates, means for securing the crates one upon top of another, means for securing the abutting ends of the crates together, locks upon each of said crates, and means connecting all of said locks whereby the same may be simultaneously operated.

Dated this 4th day of April 1896.

15

H. B. BARLOW & GILLETT,  
17 St. Ann's Square, Manchester, Agents for Applicant.

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London: Printed for Her Majesty's Stationery Office, by Darling & Son, Ltd.—1896.